WHAT IS CLAIMED:

1. A flexible intravascular stent for use in a body lumen, comprising:

a plurality of cylindrical rings aligned along a common longitudinal axis and interconnected to form a stent, each cylindrical ring having a first delivery diameter and a second implanted diameter;

a distal end ring having a plurality of first peaks and a plurality of second peaks, the first peaks and the second peaks defining an aperture; and

a proximal end ring having a plurality of first peaks and a plurality of second peaks, the first peaks and the second peaks defining an aperture.

2. The stent of claim 1, wherein the distal end ring and the proximal end ring have an unexpanded length L1 and an expanded length L2, wherein L2 is greater than L1.

3. The stent of claim 1, wherein the size of the apertures become larger when the stent expands.

4. The stent of claim 1, wherein the stent has an unexpanded length and an expanded length, the expanded length being greater than the unexpanded length.

5. The stent of claim 1, wherein the plurality of second peaks of the distal end ring extend longitudinally in a distal direction when the stent is expanded from the first delivery diameter to the second implanted diameter.

6. The stent of claim 1, wherein the plurality of second peaks of the proximal end ring extend longitudinally in the proximal direction when the stent is expanded from the first delivery diameter to the second implanted diameter.

7. The stent of claim 1, wherein at least one undulating link attaches each cylindrical ring to an adjacent cylindrical ring.

8. The stent of claim 1, wherein the cylindrical rings are configured to provide flexibility to the stent.

9. The stent of claim 1, wherein the stent is formed from a tube.

10. The stent of claim 1, wherein the stent is formed from a flat sheet.

11. The stent of claim 1, wherein the stent is formed from a metal alloy.

12. The stent of claim 11, wherein the stent is formed from any of the group of metal alloys consisting of stainless steel, tantalum, nickel-titanium, cobalt-chromium and titanium.

13. The stent of claim 1, wherein the stent is formed from a shape memory alloy.

14. The stent of claim 13, wherein the stent is formed from the group of shape memory alloys consisting of nickel-titanium and nickel-titanium-vanadium.

15. The stent of claim 1, wherein the stent is formed from a superelastic or pseudoelastic metal alloy.

16. The stent of claim 15, wherein the stent is formed from the group of superelastic or pseudoelastic metal alloys consisting of nickel-titanium and nickel-titanium-vanadium.

17. The stent of claim 1, wherein at least a portion of the stent has a variable thickness configuration.

18. The stent of claim 1, wherein at least a portion of the first peaks has a variable thickness configuration.

19. The stent of claim 1, wherein at least a portion of the second peaks has a variable thickness configuration.

20. The stent of claim 1, wherein at least a portion of the undulating links has a variable thickness configuration.

21. The stent of claim 1, wherein at least a portion of the cylindrical ring has a variable thickness configuration.

22. The stent of claim 1, wherein the first peaks have a first strut width and the second peaks have a second strut width, the first strut width being greater than the second strut width.

23. The stent of claim 1, wherein the first peaks and the second peaks have a uniform and equal strut width.

24. The stent of claim 1, wherein the stent has a therapeutic drug coating.

25. The stent of claim 1, wherein the first peaks and the second peaks have two intersection points P1, and a circumferential dimension of the second peak being greater than a distance between the points P1.

26. The stent of claim 1, wherein at least one link connects adjacent rings, the at least one link being attached to a distal end on one ring and a distal end on an adjacent ring.

27. The stent of claim 1, wherein the cylindrical rings have U-shaped undulations having an in-phase configuration.

28. A stent delivery catheter assembly for use in a body lumen, comprising:

an elongated catheter having a proximal end and a distal end, and an expandable member near the distal end of the catheter;

an intravascular stent mounted on the expandable member, the stent having a plurality of cylindrical rings aligned along a common longitudinal axis and interconnected to form the stent, each cylindrical ring having a first delivery diameter and second implanted diameter;

a distal end ring having a plurality of first peaks and a plurality of second peaks, the first peaks and the second peaks defining an aperture;

a proximal end ring having a plurality of first peaks and a plurality of second peaks, the first peaks and the second peaks defining an aperture;

the expandable member having a shoulder, wherein the stent-to-shoulder distance in the unexpanded delivery diameter is L3, the stent-to-shoulder distance in the expanded and second implanted diameter is L4, wherein L3 is a positive number and L4 is a negative number.

29. The stent delivery catheter assembly of claim 28, wherein the end rings have a length L1 when the stent is in the first delivery diameter configuration, and a length L2 when the stent is in the second implanted diameter configuration, whereby L2 is greater than L1.

30. The stent delivery catheter assembly of claim 28, wherein the stent has a length in the first delivery diameter configuration and a length in the second implanted diameter configuration, the stent length in the second implanted diameter configuration being greater than the stent length in the first delivery diameter configuration.

31. The stent delivery catheter assembly of claim 28, wherein the plurality of second peaks of the distal end ring and the plurality of second peaks of the proximal end ring extend longitudinally when the stent expands from the first delivery diameter to the second implanted diameter.